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| APPLICATION NO.                 | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------------------|-------------|----------------------|---------------------|------------------|
| 10/601,907                      | 06/24/2003  | Ju-Yup Kim           | 030681-528          | 7572             |
| 21839                           | 7590        | 07/26/2007           | EXAMINER            |                  |
| BUCHANAN, INGERSOLL & ROONEY PC |             |                      | MERCADO, JULIAN A   |                  |
| POST OFFICE BOX 1404            |             |                      | ART UNIT            | PAPER NUMBER     |
| ALEXANDRIA, VA 22313-1404       |             |                      | 1745                |                  |
| MAIL DATE                       |             | DELIVERY MODE        |                     |                  |
| 07/26/2007                      |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/601,907             | KIM ET AL.          |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Julian Mercado         | 1745                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 03 May 2007.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1 and 3-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 16-18 is/are allowed.
- 6) Claim(s) 1,3-15 and 19-22 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

|   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)             | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____.                         |

**DETAILED ACTION**

***Remarks***

This Office action is responsive to applicant's amendment filed May 3, 2007.

Claims 1 and 3-22 are pending, of which claim 22 is newly submitted.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-15, 20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "said lithium sulfide battery" in line 18 of the claim. There is insufficient antecedent basis for this limitation in the claim. It appears to the examiner that "lithium sulfide" should instead recite --lithium sulfur--.

Claim 19 at line 18 recites a similar limitation as in claim 1 and is therefore rejected on the same grounds.

Claims 3-15, 20 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kita (JP 1-265-454).

Claims 5-15 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kita (JP 1-265-454) in view of Chu et al. (U.S. Pat. 6,030,720).

Each of the above rejections is maintained for the reasons of record. The examiner notes the amendment to independent claims 1, 19 and 21 now reciting that the organic electrolytic solution is for use in a lithium sulfur battery (preamble) and during said use in said lithium sulfide [sic] battery said oxalate compound of formula (1) chelates with lithium ions and bonding between lithium ions and sulfide anions is blocked so that the solubility of sulfide ions is improved. Applicant submits that the achievement of success through this mechanism in the context of a lithium sulfur battery is not taught or suggested by Kita. While this argument may have merit (as for claims 16-18, which are not included in this rejection), in reply the examiner asserts that claims 1, 3, 4 and 19 merely require a lithium sulfur battery in a manner construed as a statement of intended use not requiring additional steps to be performed and/or not further limiting the claim to a particular structure. Accordingly, that the claimed organic electrolytic solution may be employed in a lithium sulfur battery has not been given patentable weight.

For new claim 22, the examiner maintains that the amount of oxalate directly affects the suppression of manganese dioxide and propylene carbonate (see the Abstract), accordingly, absent of unexpected results it is asserted that its amount is an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

***Allowable Subject Matter***

Claims 16-18 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record does not teach or suggest a lithium sulfur battery having the instant organic electrolytic solution.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER

  
J. M.